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A Lookout on the Sopris National Forest

W. G. Baxter
Iowa State College

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In selecting a site for a lookout station on the Sopris National Forest, the least of our troubles was to find elevation. Scores of peaks, projecting from 12,000 to 14,000 feet or more, are located all over the Forest in places suitable for taking observations at long range. It was found, however, that on excessively high situations the clouds and storms are so frequent that these become less efficient than lower points.

Mt. Lookout was finally decided upon because of its central location, its moderate height of 12,703 feet, its accessibility, and the fact that it is isolated from other peaks, so that approximately 459,000 acres or 70 per cent of the Forest is in view of the station on the summit. Part of this area, however, is situated in canyons and valleys which are not in direct view of the lookout; yet, a fire could be located by means of any smoke that might come into view.

It fell to the writer's lot to locate the 16 miles of telephone line connecting the peak with the supervisor's office, and later, in company with the guard on the peak, to build the upper mile of the line. He is frank to say that he was unable to find anything in his classroom notes or college text books that came anywhere near dealing with the subject; and it would probably be hard to find anywhere authority, or formulae, that would cover the methods it was found necessary to employ. On one especially steep part of the telephone right of way, one of the swampers suggested that we had better dig holes pretty shallow as there was danger of some of the bottoms dropping out.

The first part of the improvement to be considered was the building of a trail. Part of this was already constructed, and it was necessary to build only about five miles near the upper end to secure communication with the peak. When one considers that there were 32 coils of No. 9 wire, each weighing about 160 pounds, also insulators, brackets, telephones, sup-

plies, camp equipment, 800 pounds of barb wire for the lookout pasture, doors, windows, a stove, etc., for the lookout cabin, all to be transported over very rough country on pack horses, it is very readily seen that the trail must first be put into working order.

In locating a telephone line through tall timber, it is often necessary to swamp out a right of way on either side of the line to a distance equal to the height of the bordering trees, so that the line will be safe from any damage by falling timber. With a limited appropriation and some two-thirds of the line to be run through a stand of Englemann spruce and lodge-pole pine, this method was entirely out of the question.

The system, recently come into general use in the tree lines built by the Forest Service and known as the loose wire system, was therefore adopted. The single, grounded circuit is of No. 9 galvanized wire, strung on poles in open places, and fastened to trees, wherever it enters the timber, by being run through porcelain, split, tree insulators and being made to swing about six inches away from the tree by means of a piece of No. 12 wire, twisted around the insulator and fastened to the tree with three-inch staples. The line wire is left very loose, thus allowing it to slide through the insulators, and is kept from running down hill by being anchored with a tie wire on every eighth tree. The heavy, loose line constructed in this manner allows trees to fall across it without "putting it out of commission". Four or five trees have been found across the line at one time without any impairment of the service.

The lookout cabin, 10x12 feet and built of logs, is located at a spring one-half mile below timber line and one and one-half miles from the summit of the peak. There is an ordinary house telephone in the cabin, with an iron box set installed on the top of the peak. All of the telephone line above timber line consists of No. 9 galvanized wire strung on 14-foot poles, with the exception of the upper three-eights of a mile which is strung through tree insulators fastened to large boulders with three-eighths inch galvanized wire cable. The telephone box on the peak is fastened to two upright posts set in the rocks, and is protected by a stone wall built up around it. It is grounded at a distance of 75 feet by connection with a standard, 5-foot, telephone ground-rod driven full length into a fault in

the rock formation which is composed chiefly of a clay talc that remains moist throughout the summer months.

Each telephone is provided with a standard lightning protector and a single throw switch, because it was found that the protectors are not capable of grounding the excessive currents that sometimes occur on the higher parts of the line. Frequently during electrical storms it is necessary to disconnect the telephone in order to render the lookout cabin habitable.

A traverse board with a map of the Forest is oriented on the peak and is protected by having a galvanized pan telescoped over it. When a fire is sighted, its azimuth is determined by means of a protractor which is drawn on the map and an alidade. In a flat country it would be very difficult to determine the location of a fire without using a system of triangulation from two or more lookout stations, but, in this rugged topography, the lookout not only reports the azimuth of the fire but also locates it with reference to a known peak or valley, so that, with the knowledge of local conditions, the Supervisor or ranger concerned can usually locate the fire fairly accurately.

During the past fire season a guard was stationed on the peak from June 26 to September 20, during which time a total of 17 fires was reported. When not actually needed on patrol work, the guard worked on the telephone line, lookout cabin, pasture fence, trail, or other improvement work in the vicinity of the peak.

During the above period, approximately 35 per cent of the days were clear, 50 per cent were hazy or partly cloudy, and 15 per cent were stormy to such an extent that moderately dense smoke probably could not have been observed. During the days that are partly cloudy throughout the summer small squalls of fog, rain, or hail occur in the vicinity of the peak, making it ineffectual as a lookout point, while some parts of the Forest are enveloped in low hanging clouds so that a small smoke could not be distinguished. At such times, however, there is always a large area clearly visible, and, as the clouds are usually shifting about, eventually all of the territory can be observed.

The lookout station would be more efficient if the cabin were located on the summit of the peak, but on account of the lack

of water, absence of fuel, and the nature of the very violent electrical storms, this plan has not been attempted. As the last three-eighths mile of the route to the peak must be climbed on foot, the packing of wood, water, and supplies would be of considerable expense, especially since snow lies on the peak perpetually, and the cold days and nights even in summer would require an increased amount of fire wood.

Last but not least of the improvements is the 5x9 feet of Old Glory that always floats proudly from the 22-foot flag pole on the peak. The significance of this flag is better appreciated by Lookout Shields and myself because of the fact that we carried the heavy spruce pole on horseback, a distance of a mile, and then struggled over the three-eighths of a mile of granite boulders with it on our shoulders before finally planting it where it now stands.